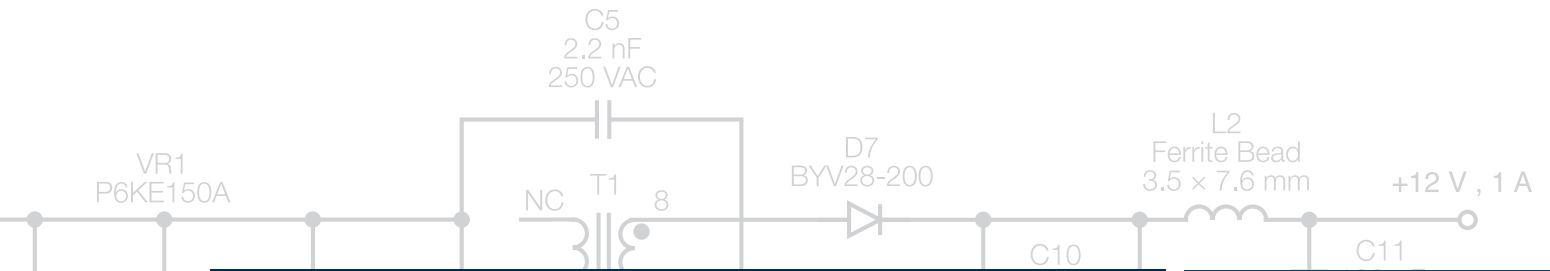


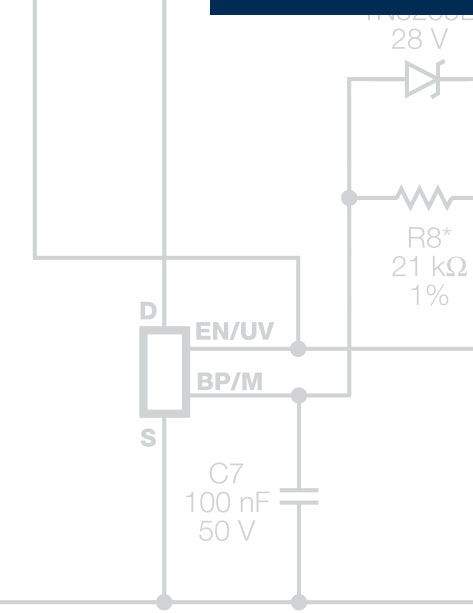
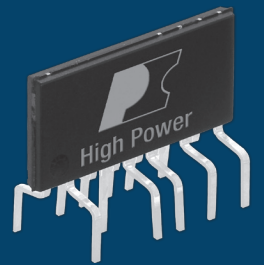
Innovation in power conversion



Product Selector Guide

High-Power AC-DC Products

September 2011



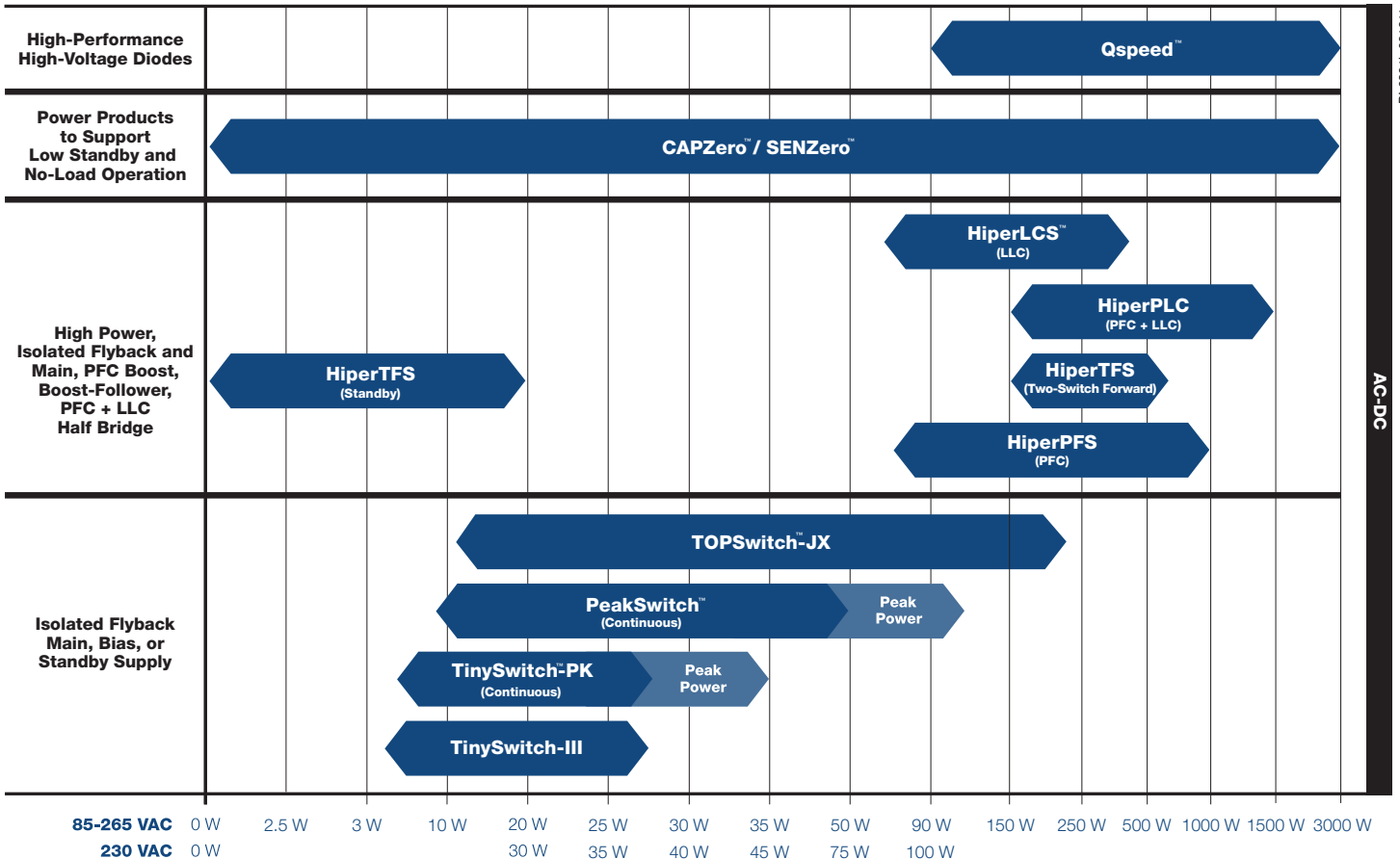
About Power Integrations

Power Integrations is the leading supplier of high-voltage analog integrated circuits used in energy-efficient power supplies. The company's innovative technology enables compact, energy-efficient power converters for a wide range of electronic products, AC-DC, DC-DC and LED lighting applications. With industry-leading product quality and delivery, the company has shipped billions of devices to customers around the world.

Since its introduction in 1998, EcoSmart™ energy-efficiency technology has saved an estimated \$4.5 billion of standby energy waste. These savings equate to approximately 31 billion kilowatt-hours of electricity – an amount which, if produced by coal-burning power plants, would have resulted in approximately 20 million tons of carbon emissions, roughly equal to the annual emissions of 3 million automobiles.

For more information, please visit www.powerint.com.

AC-DC Product Overview



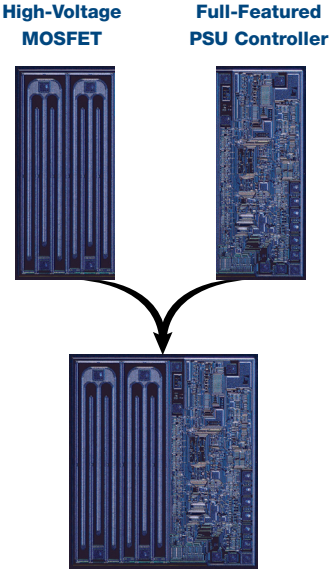
Design Simplification

Enabling Predictable Success

Power Integrations' highly integrated ICs enable the design and production of switch-mode power supplies that use up to 70% fewer components compared to discrete solutions. Switchers that incorporate our ICs are smaller, lighter, and more portable than comparable power supplies built with linear transformers.

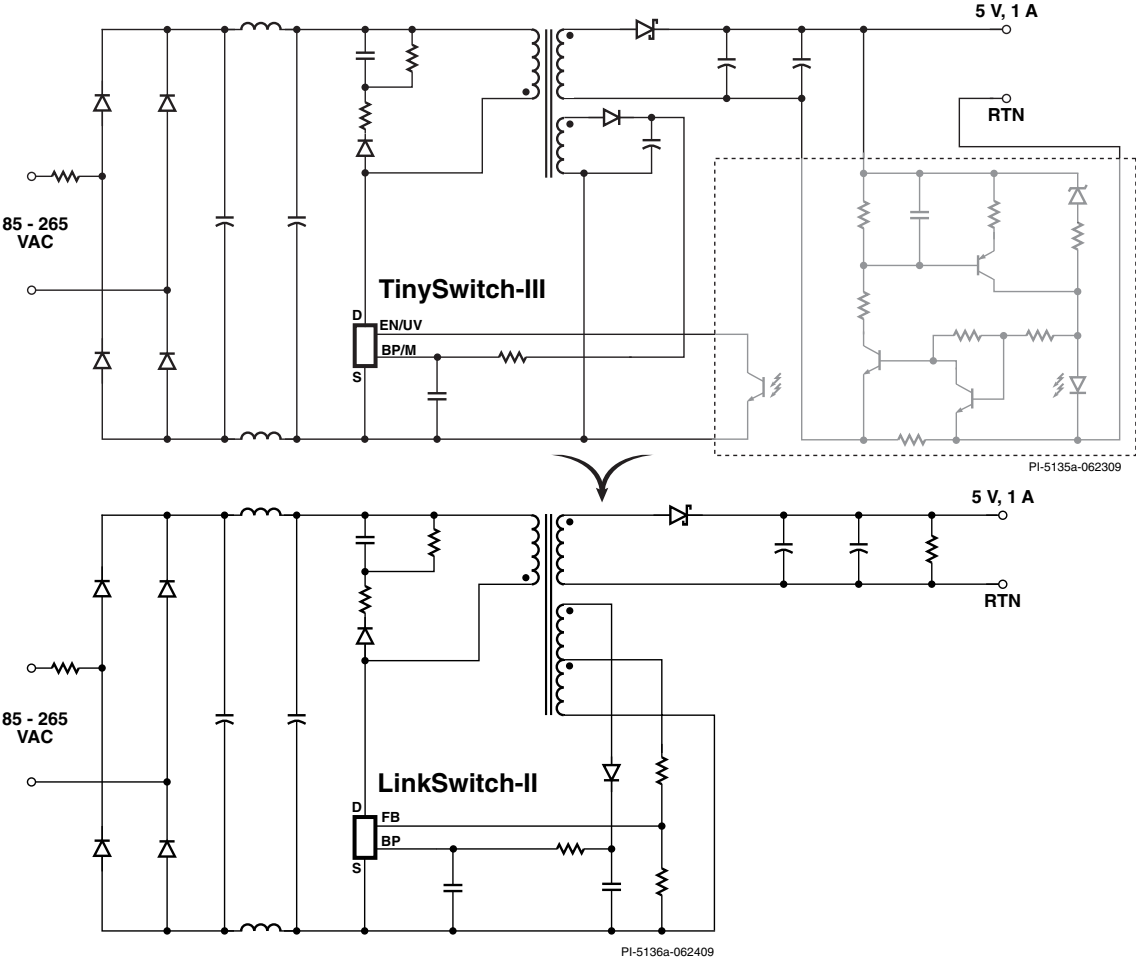
We combine a high-voltage MOSFET switch with a controller on a single chip to provide key power supply functions, such as:

- High-voltage start-up
- Short-circuit and open-loop protection
- Programmable current limit
- Line undervoltage and overvoltage protection
- Output overvoltage protection
- Accurate over-temperature and over-power protection
- Soft-start
- Feedback compensation
- Remote ON/OFF



Reducing Component Count

LinkSwitch-II dramatically simplifies low-power CV/CC charger designs by eliminating an optocoupler and secondary control circuitry. The device introduces a revolutionary control technique to provide very tight output voltage and current regulation, compensating for transformer and internal parameter tolerances along with input voltage variations.



Design Tools

Reference Designs

Reference Design Kits (RDKs) provide all of the essential materials needed to demonstrate the advanced features of Power Integrations' ICs. Kits include a fully assembled and tested reference design power supply board, engineering report, product samples, unpopulated PCB, data sheet and other related documentation.

For more information, go to www.powerint.com/dak.htm

PI Expert™ Design Software

This powerful, interactive software takes a designer's power supply specifications and automatically determines the critical components (including transformer specifications) needed to generate a working switch-mode power supply. Designs can be optimized for efficiency or cost using auto-design or manual control options. PI Expert simplifies the design of LED drivers, offline power supplies, and DC-DC converters, reducing design time from days to minutes.

To download PI Expert or request a CD, go to www.powerint.com/designsoftware.htm

PI Forums

Power Integrations provides several forums where designers can discuss technical questions with PI engineers and the extensive Power Integrations' design community:

- Power Supply Design Forum: For general technical questions
- PI Expert Support Forum: For discussing PI Expert Design Software
- Green Energy Forum: For discussing energy efficiency regulations, EcoSmart technology and improving the energy efficiency of electronic products

To participate in PI Forums, go to www.powerint.com/forum

Total Product Support

- Application notes
- Data sheets
- Design example reports
- Design ideas
- Engineering prototype reports
- PI Expert design software
- Reference design kits

EcoSmart – Enabling Energy-Efficient Power Supply Design

Power Integrations' EcoSmart technology dramatically reduces standby and no-load energy waste (by up to 95% in some applications) by intelligently managing the flow of power into a device's power supply. Using innovative IC products from Power Integrations, manufacturers can offer energy-efficient products that meet all current and proposed standby energy consumption standards around the world.

The Green Room

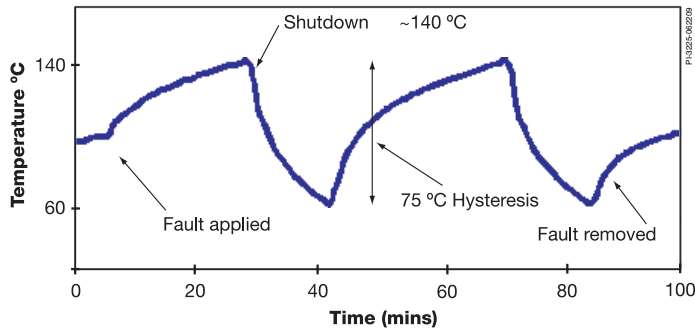
Power Integrations' Green Room web site (www.powerint.com/greenroom) offers the latest information in energy-efficient design, including:

- Energy-efficiency regulations: Search by application, regulatory agency or geographic location
- Mr. Green's blog: An informative blog about energy-efficiency standards and other green matters
- Energy FAQs: Answers to frequently asked questions about energy efficiency
- Energy-efficiency resources: Links to other helpful web sites addressing energy issues
- Introduction to green power: Tips for minimizing standby waste

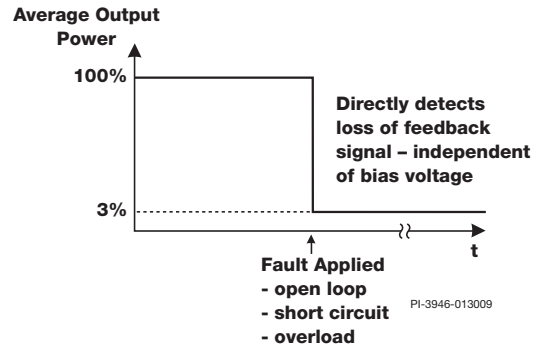
Product Features and Benefits

Comprehensive Fault Protection – Simplifies Design and Improves Reliability

- On-chip hysteretic thermal shutdown with auto-recovery
- Control loop fault protection is independent of bias voltage
- Protects entire system: device, PC board, magnetics and output rectifiers



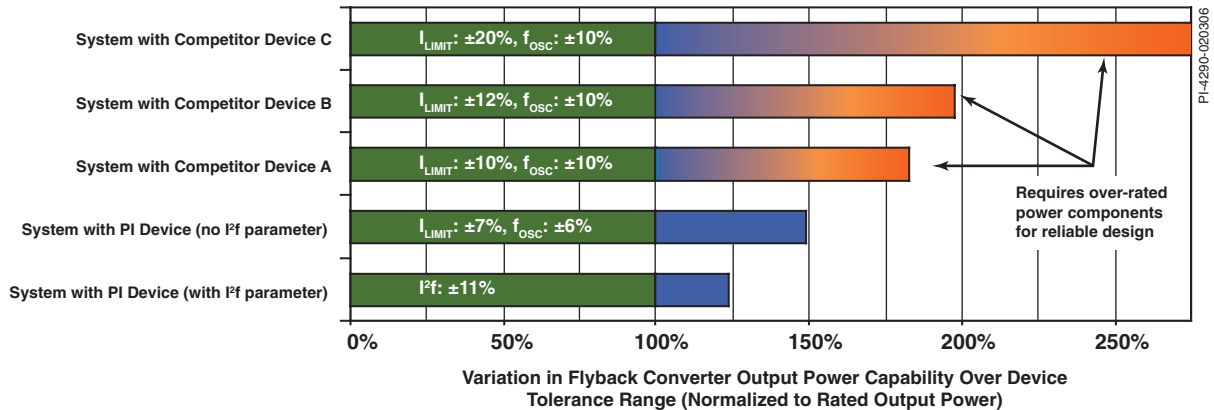
Hysteretic Thermal Shutdown



Output Power During Loss of Feedback

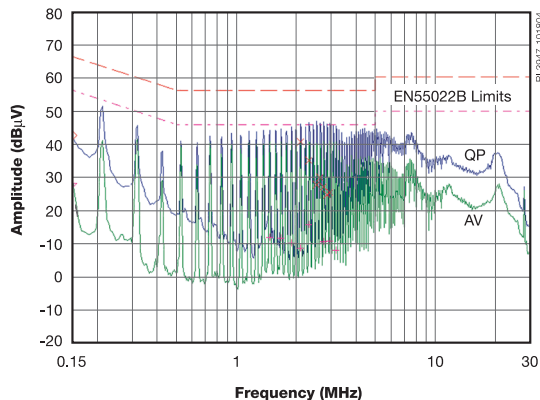
Tight Device Tolerances – Reduce System Cost

- Power Integrations' ICs have tight tolerances for current limit and switching frequency. This reduces the output overload power and therefore the power rating, size and cost for the output rectifiers, transformer and clamp components.

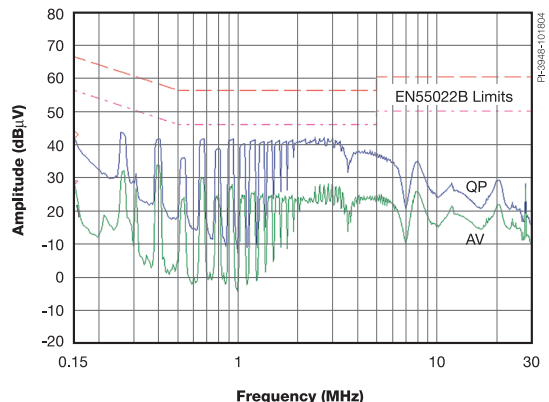


Frequency Jittering – Reduces EMI and EMI Filtering Costs

- Enables smaller, lower cost filter components



Conducted EMI without Jitter

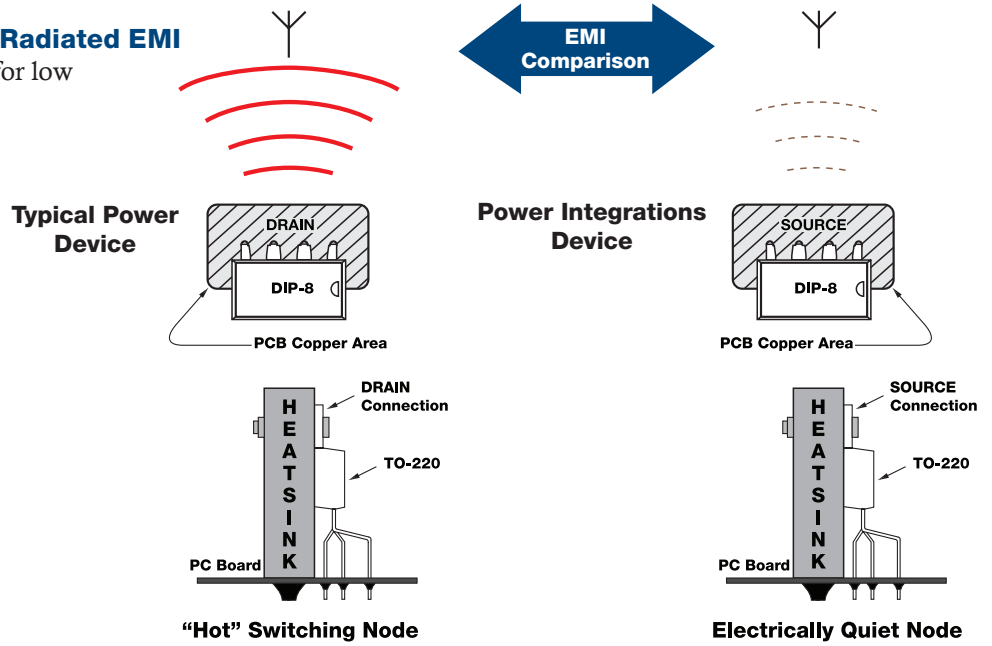


Conducted EMI with Jitter

Product Features and Benefits

Source Heat Sinking – For Low Radiated EMI

- Heat sink connected to SOURCE for low radiated EMI



Package Design/Pin Layout – Improves Reliability

- Wide package DRAIN – SOURCE creepage reduces probability of arcing
- Important for high pollution degree environments and forced air cooling
- Optimal pin arrangement allows compliance with safety agency adjacent pin short-circuit test
- Packages below are RoHS compliant

D Package	G Package	P Package	E Package	L Package	V Package	H Package	H Package	K Package
SO-8	SMD-8C	PDIP-8C	eSIP™-7C	eSIP-7F	eDIP™-12	eSIP-16B	eSIP-16C	eSOP™-12
			eSIP-7G					

High-Power, Resonant Converter Power MOSFET LLC Solution

HiperLCS

The HiperLCS is an integrated LLC power stage incorporating a multi-function controller, high-side and low-side gate drivers, plus two power MOSFETs in a half-bridge configuration. Figure 1 shows a simplified schematic of a HiperLCS based power stage where the LLC resonant inductor is integrated into the transformer.

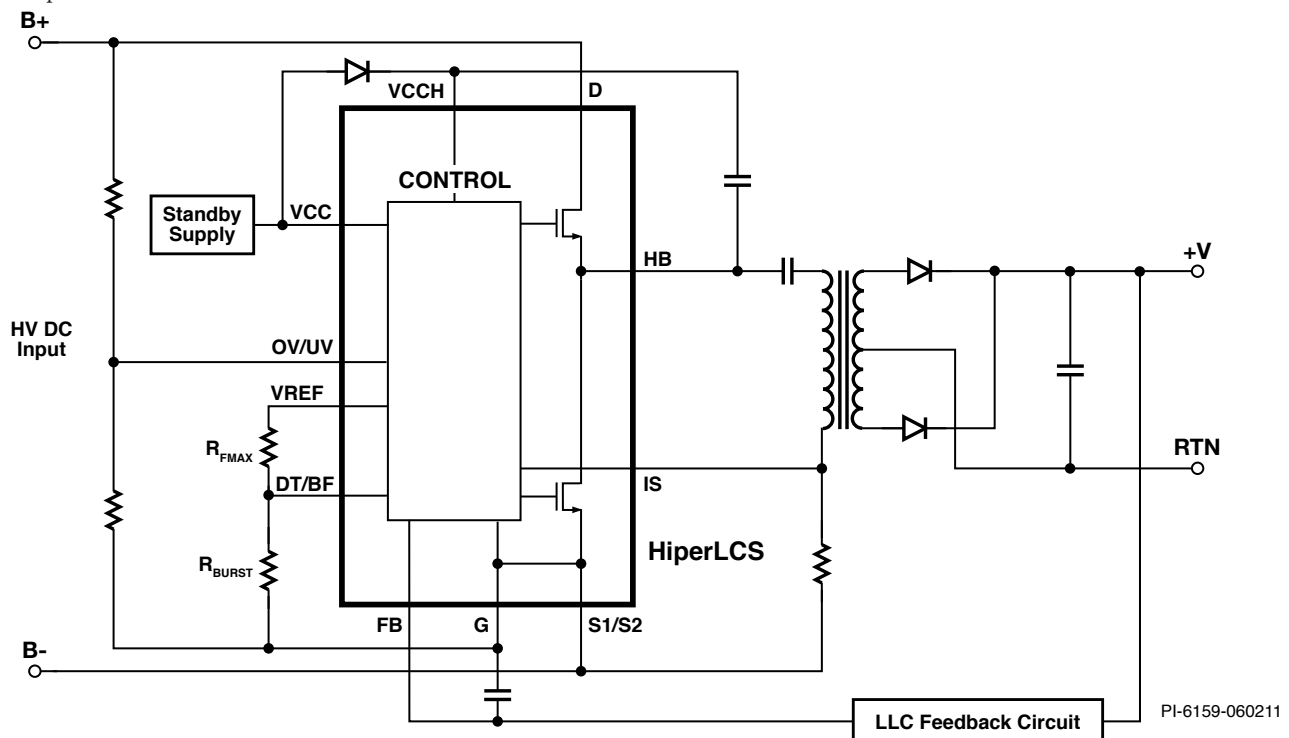
The variable frequency controller provides high efficiency by switching the power MOSFETs at zero voltage (ZVS), eliminating switching losses.

Key Benefits

- LLC half-bridge power stage incorporating controller, high and low-side gate drives, and high-voltage power MOSFETs
 - Eliminates up to 30 external components
- High maximum operating frequency of 1 MHz
 - Nominal steady-state operation up to 500 kHz
 - Dramatically reduces magnetics size and allows use of SMD ceramic output capacitors
- Precise duty symmetry balances output rectifier current, improving efficiency
 - 50% \pm 0.3% typical at 300 kHz
- Comprehensive fault handling and current limiting
 - Programmable brown-in/out thresholds and hysteresis
 - Undervoltage (UV) and overvoltage (OV) protection
 - Programmable over-current protection (OCP)
 - Short-circuit protection (SCP)
 - Over-temperature protection (OTP)
- Programmable dead-time for optimized design
- Programmable burst mode maintains regulation at no-load and improves light load efficiency
- Programmable soft-start time and delay before soft-start
- Accurate programmable minimum and maximum frequency limits
- Single package designed for high-power and high-frequency
 - Reduces assembly cost and reduces PCB layout loop areas
 - Simple single clip attachment to heat sink
 - Exposed thermal pad connected to ground potential – no insulators required between package and heat sink
 - Staggered pin arrangement for simple PC board routing and high-voltage creepage requirements
- Paired with HiperPFS PFC product gives complete, high efficiency, low part count PSU solutions

Applications

- High-efficiency power supplies (80 PLUS Silver, Gold and Platinum)
- LCD TV power supplies
- LED street and area lighting
- Printer power supplies
- Audio amplifier



High-Power, Two-Switch Forward and Flyback Solution

HiperTFS

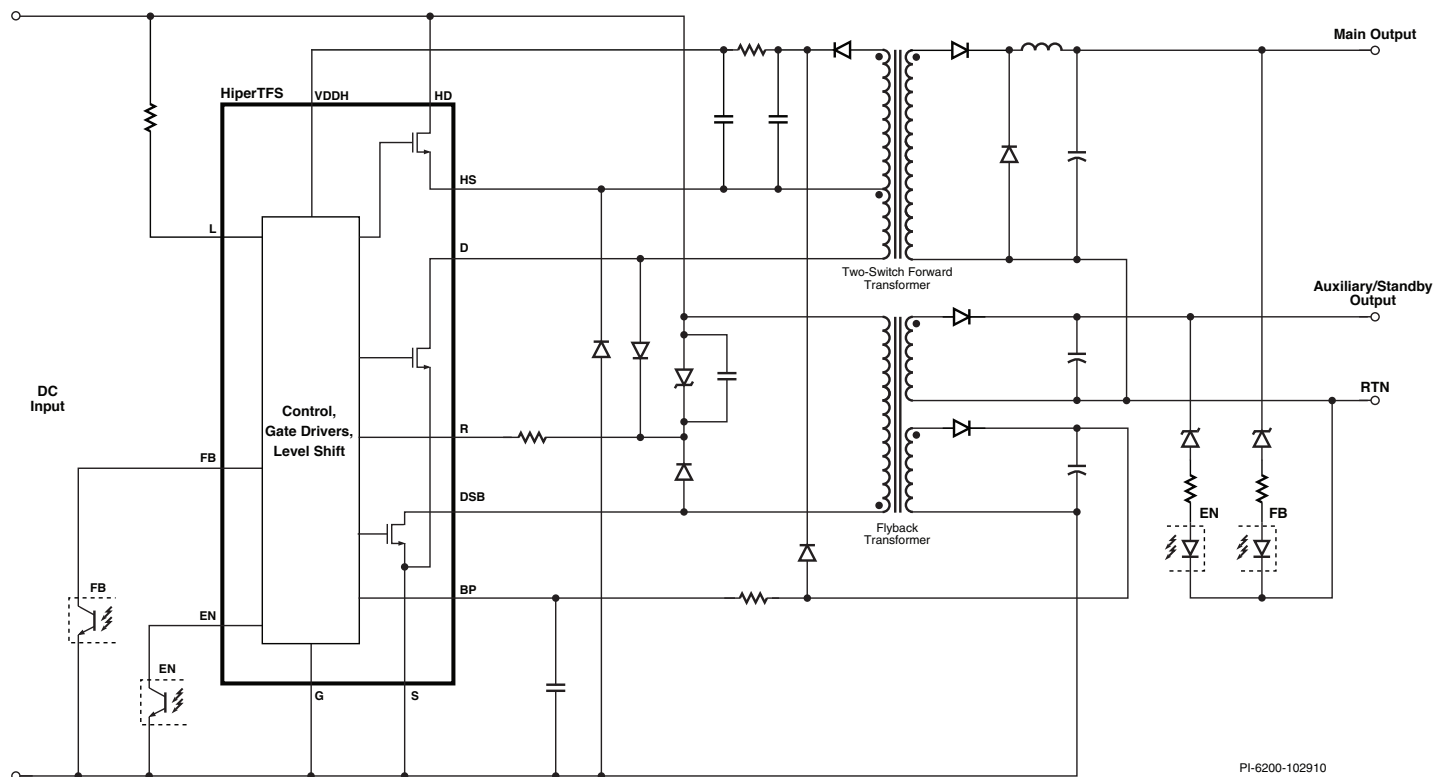
The HiperTFS device family members incorporate both a high-power two-switch-forward converter and a mid-power flyback (standby) converter into a single, low-profile eSIP power package. The single chip solution provides the controllers for the two-switch-forward and flyback converters, high and low-side drivers, all three of the high-voltage power MOSFETs, and eliminates the converter's need for costly external pulse transformers. The device is ideal for high power applications that require both a main power converter (two-switch forward) up to 414 W, and standby converter (flyback) up to 20 W. HiperTFS includes Power Integrations' standard set of comprehensive protection features, such as integrated soft-start, fault and overload protection, and hysteretic thermal shutdown. HiperTFS utilizes advanced power packaging technology that simplifies the complexity of two-switch forward layout, mounting and thermal management, while providing very high power capabilities in a single compact package. The devices operate over a wide input voltage range, and can be used following a power-factor correction stage such as HiperPFS.

Key Benefits

- Single chip solution for two-switch forward main and flyback standby
- High integration allows smaller form factor and higher power density designs
 - Incorporates control, gate drivers, and three power MOSFETs
 - Level shift technology eliminates need for pulse transformer
 - Protection features include: UV, OV, OTP, OCP, and SCP
- Transformer reset control
 - Prevents transformer saturation under all conditions
- Allows >50% duty cycle operation
 - Reduces primary side RMS currents and conduction losses
- Standby supply provides built-in overload power compensation
- Up to 434 W total output power in a highly compact package
 - Up to 550 W peak
 - High efficiency solution easily enables design to meet stringent efficiency specifications
 - >90% efficiency at full load
 - No-load regulation and low losses at light-load
- Simple clip mounting to heat sink without need for insulation pad
- Halogen free and RoHS compliant

Applications

- PC power supplies (suitable for 80 PLUS and 80 PLUS Bronze requirements)
- Printer power supplies
- LCD TV power supplies
- Video game consoles
- Industrial and appliance power supplies



PI-6200-102910

High-Power, PFC with Power MOSFET Solution

HiperPFS

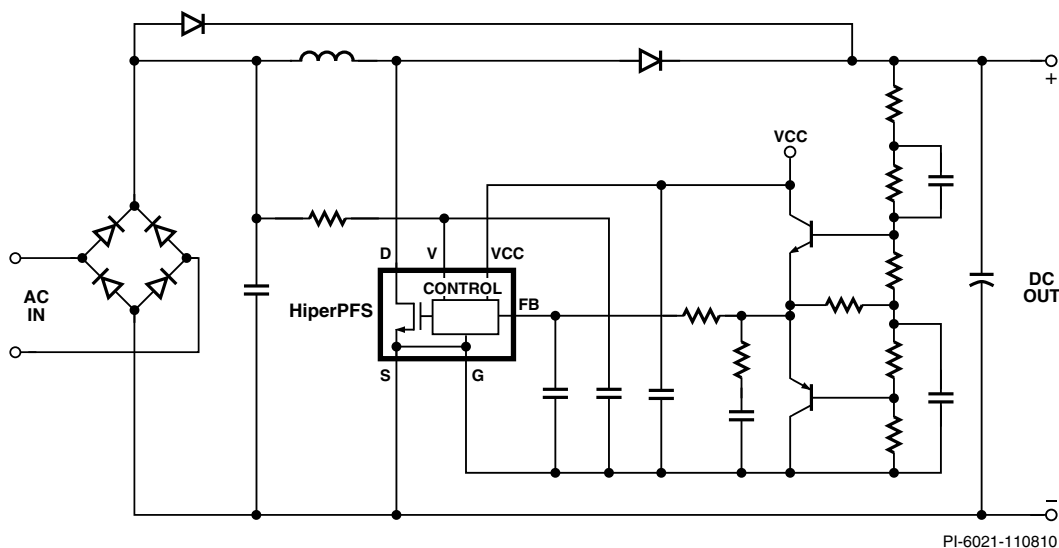
The HiperPFS device family members incorporate a continuous conduction mode (CCM) boost PFC controller, gate driver, and high-voltage power MOSFET in a single, low-profile eSIP power package that is able to provide near unity input power factor. The HiperPFS devices eliminate the PFC converter's need for external current sense resistors, the power loss associated with those components, and leverages an innovative control technique that adjusts the switching frequency over output load, input line voltage, and even input line cycle. This control technique is designed to maximize efficiency over the entire load range of the converter, particularly at light loads. Additionally, this control technique significantly minimizes the EMI filtering requirements due to its wide-bandwidth spread spectrum effect. HiperPFS includes Power Integrations' standard set of comprehensive protection features, such as integrated soft-start, UV, OV, brown-in/out, and hysteretic thermal shutdown. HiperPFS also provides cycle-by-cycle current limit for the power MOSFET, power limiting of the output for over-load protection, and pin-to-pin short-circuit protection.

Key Benefits

- Single chip solution for boost power factor correction (PFC)
 - EN61000-3-2 Class C and D compliance
- High light load efficiency at 10% and 20% load
 - >94% efficiency from 10% load to full load
 - <130 mW no-load consumption at 230 VAC with output in regulation
 - <50 mW no-load consumption at 230 VAC in remote off state
- Frequency adjusted over line voltage, and line cycle
 - Spread-spectrum across >60 kHz window to simplify EMI filtering requirements
 - Lower boost inductance
- Provides up to 1 kW peak output power
 - >1 kW peak power delivery in power limit voltage regulation mode
- High integration allows smaller form factor higher power density designs
 - Incorporates control, gate driver, and high-voltage power MOSFET
 - Internal current sense reduces component count and system losses
- Protection features include: UV, OV, OTP, brown-in/out, cycle-by-cycle current limit, and power limiting for overload protection
- Halogen free and RoHS compliant

Applications

- PC
- Printer
- LCD TV
- Video game consoles
- High power adaptors
- High power LED lighting
- Industrial and appliance
- Generic PFC converters



High-Power, High-Efficiency LLC Converter

HiperPLC

The HiperPLC power supply controller combines power factor correction (PFC) and resonant (LLC) control functions on a single integrated circuit. The PFC section of HiperPLC uses a continuous-current mode (CCM) topology to minimize the choke size and reduce EMI suppression filter complexity and component cost. The DC-DC controller supports a highly efficient resonant LLC topology. This variable frequency controller provides efficiencies in the order of 96.5% by switching the power MOSFETs at zero voltage, effectively eliminating switching losses. HiperPLC is optimized for applications from 150 W to 600 W and is suitable for 80+ Gold PC power, LCD TV, LED streetlights, and battery chargers.

PFC Stage

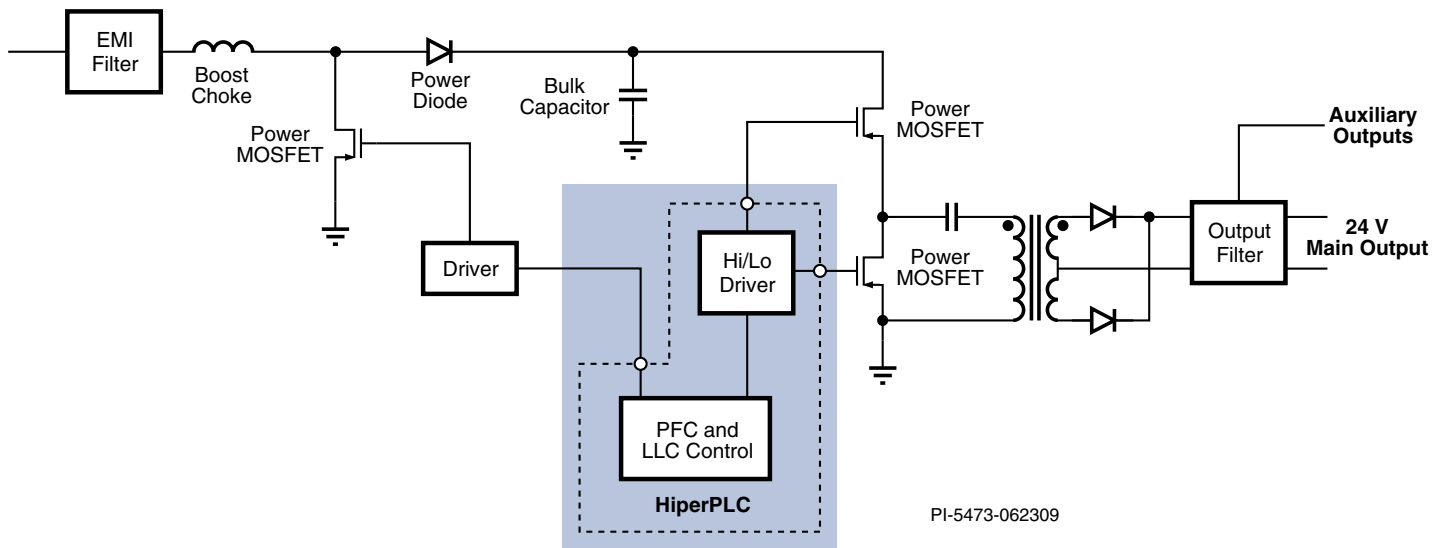
- Uses CCM mode
 - Lower differential EMI
 - Smaller PFC choke
- Single PFC/LLC switching frequency
 - Less differential EMI lower cost filter
 - Ripple current cancellation for smaller PFC bulk capacitor

LLC Stage

- Integrated PFC/LLC requires no synchronization components
- Simplified LLC current measurement reduces parts count
- Current limit and separate fast short-circuit protection
- Integrated high-side/low-side drivers

Applications

- PC
- Printer
- 150 W to 600 W high-efficiency offline power supplies
- Battery backup chargers
- LCD TV and monitor display power supplies
- LED streetlights
- Industrial and appliance



High-Efficiency, Flyback Controller and MOSFET Solution

TOPSwitch-JX

The TOPSwitch-JX is a highly integrated monolithic off-line switcher IC designed for off-line flyback power supplies. TOPSwitch-JX integrated circuits enable design of power supplies up to 177 W universal input and 244 W high-line input, while providing high efficiency under all load conditions. TOPSwitch-JX also provides very good performance at low load and during standby (no-load) operation. The TOPSwitch-JX family allows the designer to easily meet efficiency requirements for the latest energy-efficiency standards. Innovative and proprietary features enable design of compact and cost effective switching power supplies while reducing overall design cycle time and system cost. The TOPSwitch-JX family also enables the design of power supplies with robust functionality and provides enhanced safety features such as output overvoltage protection, overload power limiting and hysteretic thermal protection. TOPSwitch-JX family of solutions easily meets energy efficiency standards such as European Code of Conduct, EC EuP and ENERGY STAR.

High Efficiency Flyback Controller and MOSFET

- Flyback controller with 725 V power MOSFET and programmable current limit
- Designed for <100 mW 230 VAC no-load specifications
 - <90 mW at 230 VAC in 65 W adaptor
 - <70 mW at 264 VAC in monitor supply
 - 95 mW consumption at 20 mW load and 264 VAC input
- Multi-mode PWM control technique maximizes efficiency over load
 - 89% average efficiency in notebook adaptor
 - High efficiency across load allows use in high-power standby supplies
- Selectable switching frequency (66 kHz or 132 kHz)
 - Frequency jitter to reduce EMI filtering requirements

Extensive Protection Features

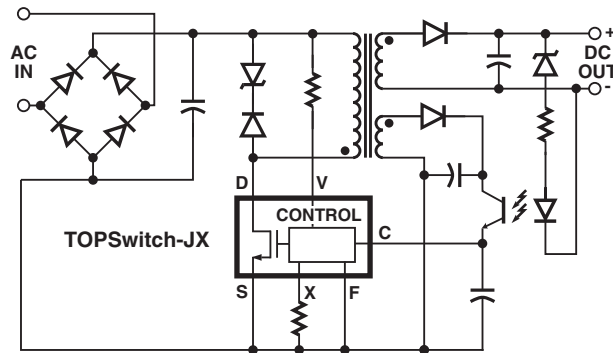
- Auto-restart limits power delivery to <3% during overload faults
 - Output short-circuit protection (SCP)
 - Output over-current protection (OCP)
 - Output overload protection (OPP)
- Output overvoltage protection (OVP)
 - User programmable for hysteretic/latching shutdown
 - Simple fast AC reset
 - Primary or secondary sensed
- Line undervoltage (UV) detection prevents turn-off glitches
- Line overvoltage (OV) shutdown extends line surge withstand
- Accurate thermal shutdown with large hysteresis (OTP)

Advanced Package for High-Power Applications

- Up to 177 W output power capability in a highly compact package
 - Up to 43 W power without external heat sink in low profile eDIP option
- Simple clip mounting to heat sink
 - Can be directly connected to heat sink without insulation pad
 - Provides thermal impedance equivalent to a TO-220
 - Heat slug connected to ground potential for low EMI
- Staggered pin arrangement for simple routing of board traces and high-voltage creepage requirements

Applications

- Notebook or laptop adapter
- Generic adapter
- Printer
- LCD monitor
- Set-top box
- PC or LCD TV standby
- LCD-TV and monitor display power supplies
- LED streetlights



High-Efficiency Flyback for Standby/Auxiliary

TinySwitch-III

TinySwitch-III incorporates a 700 V MOSFET, oscillator, high-voltage switched current source, current limit (user selectable) and thermal shutdown circuitry. The IC family uses an ON/OFF control scheme and offers a design flexible solution with a low system cost and extended power capability. Unlike conventional PWM (pulse width modulator) controllers, it uses a simple ON/OFF control to regulate the output voltage. The controller consists of an oscillator, enable circuit (sense and logic), current limit state machine, 5.85 V regulator, BYPASS/MULTI-FUNCTION pin undervoltage, overvoltage circuit, and current limit selection circuitry, over-temperature protection, current limit circuit, leading edge blanking, and a 700 V power MOSFET. TinySwitch-III incorporates additional circuitry for line undervoltage sense, auto-restart, adaptive switching cycle on-time extension, and frequency jitter. Figure below shows the functional block diagram with the most important features.

Product Highlights (Lowest System Cost with Enhanced Flexibility)

- Simple ON/OFF control, no loop compensation needed
- Selectable current limit through BP/M capacitor value
 - Higher current limit extends peak power or, in open frame applications, maximum continuous power
 - Lower current limit improves efficiency in enclosed adapters/chargers
 - Allows optimum TinySwitch-III choice by swapping devices with no other circuit redesign
- Tight I^2t parameter tolerance reduces system cost
 - Maximizes MOSFET and magnetics power delivery
 - Minimizes max overload power, reducing cost of transformer, primary clamp & secondary components
- ON-time extension – extends low line regulation range/hold-up time to reduce input bulk capacitance
- Self-biased: no bias winding or bias components
- Frequency jittering reduces EMI filter costs
- Pin-out simplifies heat sinking to the PCB
- SOURCE pins are electrically quiet for low EMI

Enhanced Safety and Reliability Features

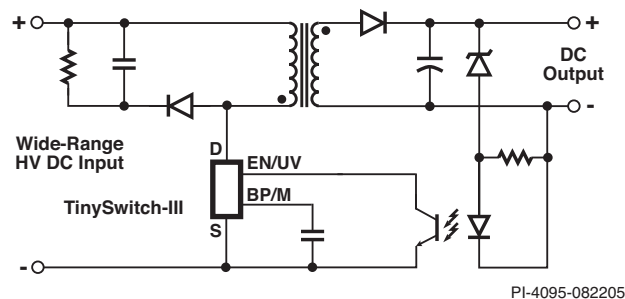
- Accurate hysteretic thermal shutdown protection with automatic recovery eliminates need for manual reset
- Improved auto-restart delivers <3% of maximum power in short-circuit and open loop fault conditions
- Output overvoltage shutdown with optional Zener
- Line undervoltage detect threshold set using a single optional resistor
- Very low component count enhances reliability and enables single-sided printed circuit board layout
- High bandwidth provides fast turn on with no overshoot and excellent transient load response
- Extended creepage between DRAIN and all other pins improves field reliability

EcoSmart™

- Easily meets all global energy efficiency regulations
- No-load <150 mW at 265 VAC without bias winding, <50 mW with bias winding
- ON/OFF control provides constant efficiency down to very light loads – ideal for mandatory CEC regulations and 1 W PC standby requirements

Applications

- PC Standby and other auxiliary supplies
- Chargers/adapters for cell/cordless phones, PDAs, digital cameras, MP3/portable audio, shavers, etc.
- DVD/PVR and other low power set top decoders
- Appliances, industrial systems, metering, etc.



Automatic X Capacitor Discharge IC

CAPZero™

When AC voltage is applied, CAPZero blocks current flow in the X capacitor safety discharge resistors, reducing the power loss to less than 5 mW, or essentially zero at 230 VAC. When AC voltage is disconnected, CAPZero automatically discharges the X capacitor by connecting the series discharge resistors. This operation allows total flexibility in the choice of the X capacitor to optimize differential mode EMI filtering and reduce inductor costs, with no change in power consumption.

Designing with CAPZero is simply a matter of selecting the appropriate CAPZero device and external resistor values in Table 1 for the X capacitor value being used. This design choice will provide a worst case RC time constant, when the AC supply is disconnected, of less than 1 second as required by international safety standards.

The simplicity and ruggedness of the two terminal CAPZero IC makes it an ideal choice in systems designed to meet EuP Lot 6 requirements.

The CAPZero family has two voltage grades: 825 V and 1000 V. The voltage rating required depends on surge requirement and circuit configuration of the application. See Key Applications Considerations section for details.

Product Highlights

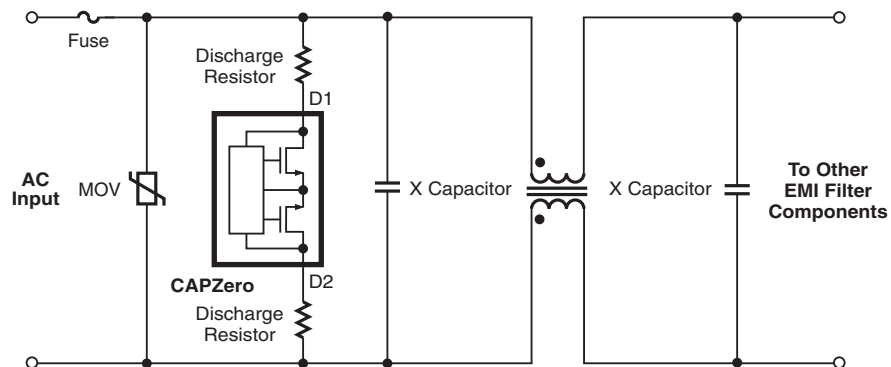
- Blocks current through X capacitor discharge resistors when AC voltage is connected
- Automatically discharges X capacitors through discharge resistors when AC is disconnected
- Simplifies EMI filter design – larger X capacitor allows smaller inductive components with no change in consumption
- Only two terminals – meets safety standards for use before or after system input fuse
- >4 mm creepage on package and PCB
- Self supplied – no external bias required
- High common mode surge immunity – no external ground connection
- High differential surge withstand – 1000 V internal MOSFETs

EcoSmart

- <5 mW consumption at 230 VAC for all X capacitor values

Applications

- All ACDC converters with X capacitors >100 nF
- Appliances requiring EuP Lot 6 compliance
- Adapters requiring ultra low no-load consumption
- All converters requiring very low standby power



PI-6120-082410

High-Voltage Sense Signal Disconnect IC

SENZero™

SENZero is a compact low cost solution to eliminate losses in resistive signal paths connected between high-voltage rails and switching power supply controller(s). Examples include feed-forward or feedback signal paths connected to boost controllers in power factor corrected systems and feed-forward signal paths in two switch forward / LLC / half and full bridge converters.

The device is available in 2 (SEN012) and 3 (SEN013) channel versions according to the application's requirements. The internal gate drive and protection circuitry provides gate drive signals to the internal 650 V MOSFETs in response to the voltage applied to the VCC pin. This simple configuration provides easy integration into existing systems by using the system VCC rail as an input to the SENZero.

The SENZero family uses a low cost compact SO-8 package to reduce PCB area while the pin configuration is designed to meet pin-pin fault conditions.

Product Highlights

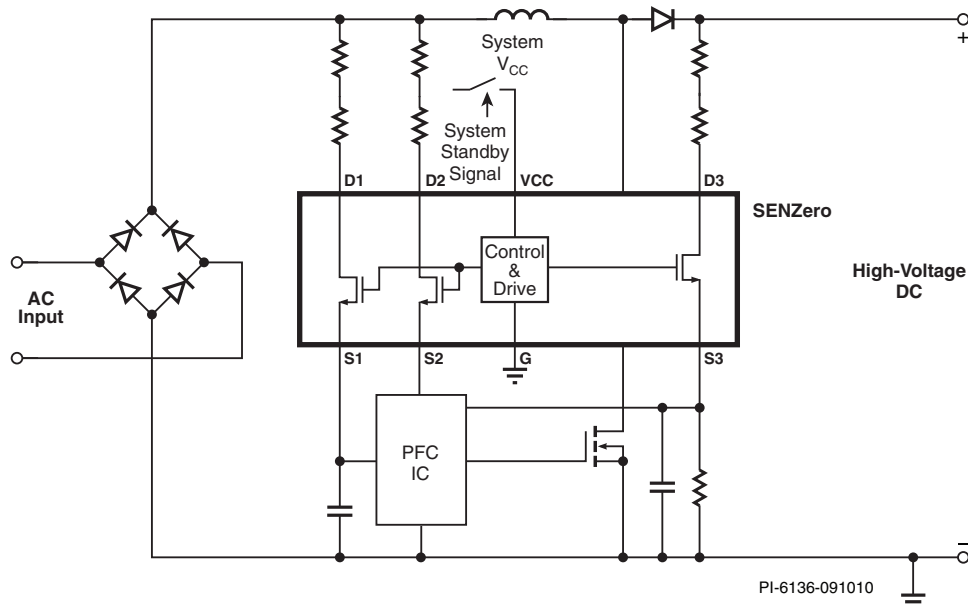
- Eliminates significant standby losses
- Disconnects unnecessary circuit blocks during standby, remote-off, or light-load conditions
- Ultra low leakage (maximum 1 mA) 650 V MOSFETs
 - <0.5 mW per channel during standby
- Single component provides remote disconnect functionality
 - No external components or additional bias supply needed for remote-off
 - Integrates multiple disconnect MOSFETs, gate drive, and protection
 - Minimal component count provides higher reliability
- Protection features to help production/manufacturing yields
 - Pin-to-pin fault and ESD protection
- Triggerable via remote-off signal or load conditions
 - Integrated gate pull down circuit protects against loss of trigger signal fault
- Green package technology
 - RoHS compliant and halogen free
- Withstands high differential surge conditions
 - S1, S2 and S3 interface with controller pins up to 6.5 V above system ground

EcoSmart

- <3 mW loss at 230 VAC in Off/standby mode

Applications

- ACDC converters with high-voltage resistive signal paths
- Ideal for all very low standby systems such as those meeting EuP Lot 6 and similar energy efficiency standards



High-Performance Diodes

Qspeed™ Diodes

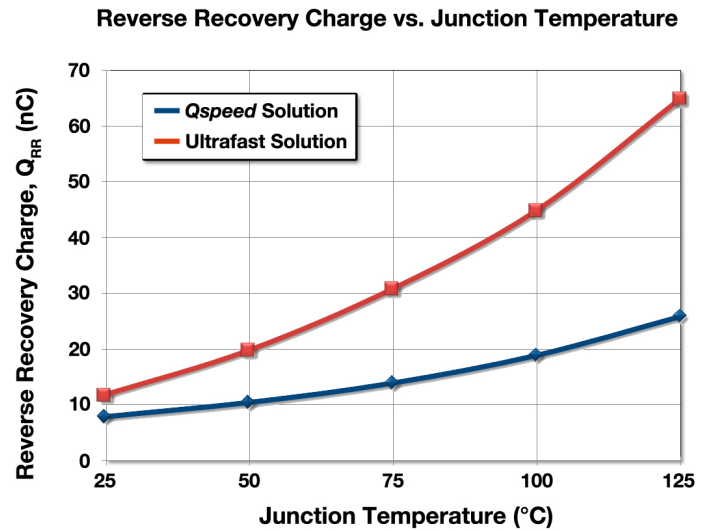
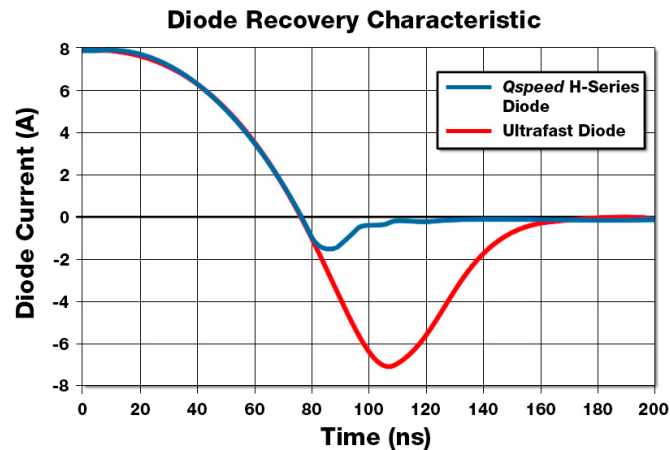
Qspeed diodes combine an extremely low reverse recovery charge (Q_{RR}) with very soft recovery. Together, these features help designers improve the performance of their power conversion circuits.

Application Guide

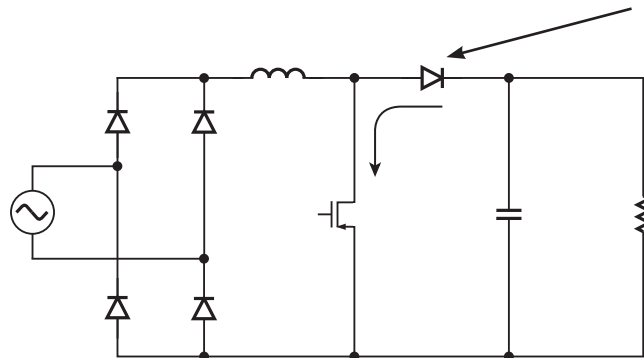
$f < 80$ kHz	X-Series	Lowest V_F
$f > 80$ kHz	Q-Series	Lowest EMI
	H-Series	Highest Efficiency

Product Highlights

- Ideal for continuous conduction mode (CCM) PFC circuits
 - Very low reverse recovery (Q_{RR}) greatly reduces power loss in PFC diode and switching MOSFET
 - Flat Q_{RR} temperature characteristic reduces overdesign compared to ultrafast diodes
 - Ultra-soft recovery characteristic reduces EMI
 - Reduced switching losses and EMI allows higher switching frequency for smaller PFC inductors
 - Common cathode TO-220 package option is ideal for interleaved designs
- Reduced peak inverse voltage and soft recovery characteristic eliminate snubber circuits
 - Ideal for output rectifier diodes for electric vehicle chargers
- Product families optimized for different performance characteristics – lowest EMI and highest efficiency against different operating frequencies



Qspeed diodes significantly reduce reverse recovery loss that improves efficiency.



PI-6452-051011

IC Product Tables – Enclosed

Power 85-265 VAC (rated) (W)	Peak Power 85-265 VAC (best) (W)	Device	Package	PSR/ Opto	CV Accuracy (best) (%)	Cable-Drop Compensation (1 μ F, 10 μ F)	CC Accuracy (best) (%)	Typical No Load Power at 230 VAC (with bias winding) (mW)	Typical Current Limit (A)	ON/OFF, PWM, Multimode	Output Power Limiting	Output OVP
110	110	LCS700	H	Opto	± 5	N/A	N/A	< 1 W	5.2	PWM	Y	Auto-Restart
170	170	LCS701	H	Opto	± 5	N/A	N/A	< 1 W	7.7	PWM	Y	Auto-Restart
220	220	LCS702	H	Opto	± 5	N/A	N/A	< 1 W	10.3	PWM	Y	Auto-Restart
275	275	LCS703	H	Opto	± 5	N/A	N/A	< 1 W	12.9	PWM	Y	Auto-Restart
350	350	LCS705	H	Opto	± 5	N/A	N/A	< 1 W	19.3	PWM	Y	Auto-Restart
440	440	LCS708	H	Opto	± 5	N/A	N/A	< 1 W	30.9	PWM	Y	Auto-Restart
110	120	PFS704	E	Non-Isolated	± 5	N/A	N/A	< 130	4.0	PWM	Y	Auto-Restart
140	150	PFS706	E	Non-Isolated	± 5	N/A	N/A	< 130	4.8	PWM	Y	Auto-Restart
190	205	PFS708	E	Non-Isolated	± 5	N/A	N/A	< 130	5.8	PWM	Y	Auto-Restart
240	260	PFS710	E	Non-Isolated	± 5	N/A	N/A	< 130	7.2	PWM	Y	Auto-Restart
300	320	PFS712	E	Non-Isolated	± 5	N/A	N/A	< 130	8.4	PWM	Y	Auto-Restart
350	385	PFS714	E	Non-Isolated	± 5	N/A	N/A	< 130	9.5	PWM	Y	Auto-Restart
388	425	PFS716	E	Non-Isolated	± 5	N/A	N/A	< 130	9.8	PWM	Y	Auto-Restart
255	280	PFS723	E	Non-Isolated	± 5	N/A	N/A	< 130	4.0	PWM	Y	Auto-Restart
315	350	PFS724	E	Non-Isolated	± 5	N/A	N/A	< 130	4.8	PWM	Y	Auto-Restart
435	480	PFS725	E	Non-Isolated	± 5	N/A	N/A	< 130	5.8	PWM	Y	Auto-Restart
540	600	PFS726	E	Non-Isolated	± 5	N/A	N/A	< 130	7.2	PWM	Y	Auto-Restart
675	750	PFS727	E	Non-Isolated	± 5	N/A	N/A	< 130	8.4	PWM	Y	Auto-Restart
810	900	PFS728	E	Non-Isolated	± 5	N/A	N/A	< 130	9.5	PWM	Y	Auto-Restart
900	1000	PFS729	E	Non-Isolated	± 5	N/A	N/A	< 130	10.2	PWM	Y	Auto-Restart
193	228	TFS757	H	Opto	External	N/A	N/A	< 50	1.70	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
236	278	TFS758	H	Opto	External	N/A	N/A	< 50	2.45	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
280	309	TFS759	H	Opto	External	N/A	N/A	< 50	2.70	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
305	358	TFS760	H	Opto	External	N/A	N/A	< 50	3.10	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
326	393	TFS761	H	Opto	External	N/A	N/A	< 50	3.30	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
355	407	TFS762	H	Opto	External	N/A	N/A	< 50	3.50	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
388	455	TFS763	H	Opto	External	N/A	N/A	< 50	3.90	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
414	530	TFS764	H	Opto	External	N/A	N/A	< 50	4.50	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
12	20	TOP264	V	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
15	26	TOP265	V	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
16	16	TOP264	K	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
17	40	TOP266	V	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
19	55	TOP267	V	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
20	20	TOP264	E	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
20	20	TOP265	K	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
21.5	70	TOP268	V	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
22.5	80	TOP269	V	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
23	23	TOP266	K	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
24.5	93	TOP270	V	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
26	26	TOP265	E	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
26	26	TOP267	K	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
26	118	TOP271	V	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart
30	30	TOP268	K	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
33	33	TOP269	K	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
36	36	TOP270	K	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
40	40	TOP266	E	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
40	40	TOP271	K	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart
55	55	TOP267	E	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
70	70	TOP268	E	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
80	80	TOP269	V	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
93	93	TOP270	E	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
118	118	TOP271	E	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart

IC Product Tables – Enclosed

Device	Output Short-Circuit Protection	Programmable Current Limit	Line UV	Line OV	Line Ripple Rejection	Soft Start (ms)	I _{pf} Trimming	Nominal Switching Frequency (kHz)	On-Time Extension	Peak Power Delivered During Short Circuit (%)	Fast AC Reset	Integrated Latching Shutdown
LCS700	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS701	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS702	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS703	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS705	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS708	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
PFS704	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS706	N/A	Fixed	Y	V	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS708	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS710	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS712	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS714	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS716	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS723	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS724	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS725	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS726	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS727	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS728	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS729	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
TFS757	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
PFS758	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS759	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS760	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS761	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS762	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS763	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS764	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP266	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP266	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y

IC Product Tables – Enclosed

Power 85-265 VAC (rated) (W)	Peak Power 85-265 VAC (best) (W)	Device	Package	PSR/ Opto	CV Accuracy (best) (%)	Cable-Drop Compensation (1 μ F, 10 μ F)	CC Accuracy (best) (%)	Typical No Load Power at 230 VAC (with bias winding) (mW)	Typical Current Limit (A)	ON/OFF, PWM, Multimode	Output Power Limiting	Output OVP
5	8.5	TNY274	P, G	Opto	External	Remote Sense	External	< 50	0.25	ON/OFF	Y	Latch
6	11.5	TNY275	P, G	Opto	External	Remote Sense	External	< 50	0.275	ON/OFF	Y	Latch
7	15	TNY276	P, G	Opto	External	Remote Sense	External	< 50	0.35	ON/OFF	Y	Latch
8	18	TNY277	P, G	Opto	External	Remote Sense	External	< 50	0.45	ON/OFF	Y	Latch
10	21.5	TNY278	P, G	Opto	External	Remote Sense	External	< 50	0.55	ON/OFF	Y	Latch
12	25	TNY279	P, G	Opto	External	Remote Sense	External	< 50	0.65	ON/OFF	Y	Latch
14	28.5	TNY280	P, G	Opto	External	Remote Sense	External	< 50	0.75	ON/OFF	Y	Latch

IC Product Tables – Enclosed

Device	Output Short-Circuit Protection	Programmable Current Limit	Line UV	Line OV	Line Ripple Rejection	Soft Start (ms)	I _{pf} Trimming	Nominal Switching Frequency (kHz)	On-Time Extension	Peak Power Delivered During Short Circuit (%)	Fast AC Reset	Integrated Latching Shutdown
TNY274	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY275	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY276	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY277	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY278	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY279	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY280	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y

IC Product Tables – Open Frame

Open Frame Power 85-265 VAC (rated) (W)	Open Frame Peak Power 85-265 VAC (best) (W)	Device	Package	PSR/ Opto	CV Accuracy (best) (%)	Cable-Drop Compensation (1 μ F, 10 μ F)	CC Accuracy (best) (%)	Typical No Load Power at 230 VAC (with bias winding) (mW)	Typical Current Limit (A)	ON/OFF, PWM, Multimode	Output Power Limiting	Output OVP
110	110	LCS700	H	Opto	± 5	N/A	N/A	< 1 W	5.2	PWM	Y	External
170	170	LCS701	H	Opto	± 5	N/A	N/A	< 1 W	7.7	PWM	Y	External
220	220	LCS702	H	Opto	± 5	N/A	N/A	< 1 W	10.3	PWM	Y	External
275	275	LCS703	H	Opto	± 5	N/A	N/A	< 1 W	12.9	PWM	Y	External
350	350	LCS705	H	Opto	± 5	N/A	N/A	< 1 W	19.3	PWM	Y	External
440	440	LCS708	H	Opto	± 5	N/A	N/A	< 1 W	30.9	PWM	Y	External
110	120	PFS704	E	Non-Isolated	± 5	N/A	N/A	< 130	4.0	PWM	Y	Auto-Restart
140	150	PFS706	E	Non-Isolated	± 5	N/A	N/A	< 130	4.8	PWM	Y	Auto-Restart
190	205	PFS708	E	Non-Isolated	± 5	N/A	N/A	< 130	5.8	PWM	Y	Auto-Restart
240	260	PFS710	E	Non-Isolated	± 5	N/A	N/A	< 130	7.2	PWM	Y	Auto-Restart
300	320	PFS712	E	Non-Isolated	± 5	N/A	N/A	< 130	8.4	PWM	Y	Auto-Restart
350	385	PFS714	E	Non-Isolated	± 5	N/A	N/A	< 130	9.5	PWM	Y	Auto-Restart
388	425	PFS716	E	Non-Isolated	± 5	N/A	N/A	< 130	9.8	PWM	Y	Auto-Restart
255	280	PFS723	E	Non-Isolated	± 5	N/A	N/A	< 130	4.0	PWM	Y	Auto-Restart
315	350	PFS724	E	Non-Isolated	± 5	N/A	N/A	< 130	4.8	PWM	Y	Auto-Restart
435	480	PFS725	E	Non-Isolated	± 5	N/A	N/A	< 130	5.8	PWM	Y	Auto-Restart
540	600	PFS726	E	Non-Isolated	± 5	N/A	N/A	< 130	7.2	PWM	Y	Auto-Restart
675	750	PFS727	E	Non-Isolated	± 5	N/A	N/A	< 130	8.4	PWM	Y	Auto-Restart
810	900	PFS728	E	Non-Isolated	± 5	N/A	N/A	< 130	9.5	PWM	Y	Auto-Restart
900	1000	PFS729	E	Non-Isolated	± 5	N/A	N/A	< 130	10.2	PWM	Y	Auto-Restart
193	228	TFS757	H	Opto	External	N/A	N/A	< 50	1.70	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
236	278	TFS758	H	Opto	External	N/A	N/A	< 50	2.45	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
280	309	TFS759	H	Opto	External	N/A	N/A	< 50	2.70	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
305	358	TFS760	H	Opto	External	N/A	N/A	< 50	3.10	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
326	393	TFS761	H	Opto	External	N/A	N/A	< 50	3.30	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
355	407	TFS762	H	Opto	External	N/A	N/A	< 50	3.50	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
388	455	TFS763	H	Opto	External	N/A	N/A	< 50	3.90	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
414	530	TFS764	H	Opto	External	N/A	N/A	< 50	4.50	PWM & ON/OFF	Y	Latch / Non-Latch / Auto-Restart
22.5	43	TOP264	V	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
25	57	TOP265	V	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
28.5	86	TOP266	V	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
30	30	TOP264	K	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
32	103	TOP267	V	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
34	34	TOP265	K	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
36	112	TOP268	V	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
37.5	120	TOP269	V	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
39	39	TOP266	K	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
41	140	TOP270	V	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
43	43	TOP264	E	Opto	External	Remote Sense	External	< 75	1.3	Multimode	Y	Latch / Auto-Restart
43	177	TOP271	V	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart
45	45	TOP267	K	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
50	50	TOP268	K	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
55	55	TOP269	K	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
57	57	TOP265	E	Opto	External	Remote Sense	External	< 75	1.7	Multimode	Y	Latch / Auto-Restart
60	60	TOP270	K	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
66	66	TOP271	K	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart
86	86	TOP266	E	Opto	External	Remote Sense	External	< 75	2.55	Multimode	Y	Latch / Auto-Restart
103	103	TOP267	E	Opto	External	Remote Sense	External	< 75	3	Multimode	Y	Latch / Auto-Restart
112	112	TOP268	E	Opto	External	Remote Sense	External	< 75	3.25	Multimode	Y	Latch / Auto-Restart
120	120	TOP269	E	Opto	External	Remote Sense	External	< 75	3.48	Multimode	Y	Latch / Auto-Restart
140	140	TOP270	E	Opto	External	Remote Sense	External	< 75	4.2	Multimode	Y	Latch / Auto-Restart
177	177	TOP271	E	Opto	External	Remote Sense	External	< 75	5.17	Multimode	Y	Latch / Auto-Restart

IC Product Tables – Open Frame

Device	Output Short-Circuit Protection	Programmable Current Limit	Line UV	Line OV	Line Ripple Rejection	Soft Start (ms)	I _{pf} Trimming	Nominal Switching Frequency (kHz)	On-Time Extension	Peak Power Delivered During Short Circuit (%)	Fast AC Reset	Integrated Latching Shutdown
LCS700	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS701	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS702	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS703	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS705	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2	N/A	N
LCS708	Auto-Restart	Y	Y	Y	N/A	Programmable	N/A	Variable	N/A	0.2-	N/A	N
PFS704	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS706	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS708	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS710	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS712	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS714	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS716	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS723	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS724	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS725	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS726	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS727	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS728	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
PFS729	N/A	Fixed	Y	Y	N/A	18	N/A	Variable	N/A	N/A	N/A	N/A
TFS757	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
PFS758	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS759	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS760	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS761	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS762	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS763	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TFS764	Auto-Restart	Selectable	Y	Y	N/A	12	Y	66 & 132	N	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP266	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP266	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP264	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP265	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP266	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP267	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP268	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP269	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP270	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y
TOP271	Auto-Restart	Y	Y	Y	Dual Slope	17	Y	66/132	Y	2	Y	Y

IC Product Tables – Open Frame

Open Frame Power 85-265 VAC (rated) (W)	Open Frame Peak Power 85-265 VAC (best) (W)	Device	Package	PSR/ Opto	CV Accuracy (best) (%)	Cable-Drop Compensation (1 μ F, 10 μ F)	CC Accuracy (best) (%)	Typical No Load Power at 230 VAC (with bias winding) (mW)	Typical Current Limit (A)	ON/OFF, PWM, Multimode	Output Power Limiting	Output OVP
8.5	8.5	TNY274	P, G	Opto	External	Remote Sense	External	< 50	0.25	ON/OFF	Y	Latch
11.5	11.5	TNY275	P, G	Opto	External	Remote Sense	External	< 50	0.275	ON/OFF	Y	Latch
15	15	TNY276	P, G	Opto	External	Remote Sense	External	< 50	0.35	ON/OFF	Y	Latch
18	18	TNY277	P, G	Opto	External	Remote Sense	External	< 50	0.45	ON/OFF	Y	Latch
21.5	21.5	TNY278	P, G	Opto	External	Remote Sense	External	< 50	0.55	ON/OFF	Y	Latch
25	25	TNY279	P, G	Opto	External	Remote Sense	External	< 50	0.65	ON/OFF	Y	Latch
28.5	28.5	TNY280	P, G	Opto	External	Remote Sense	External	< 50	0.75	ON/OFF	Y	Latch

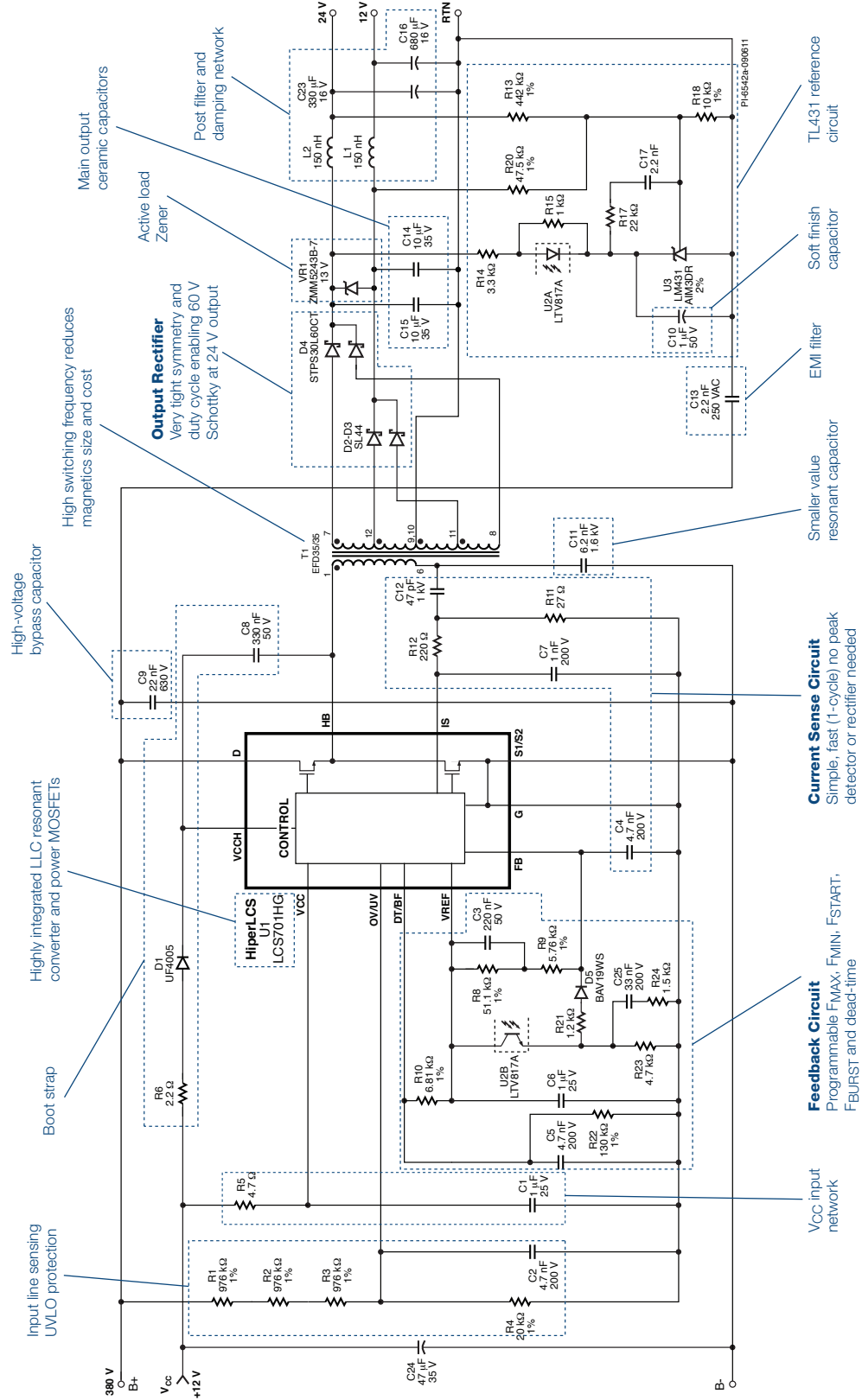
IC Product Tables – Open Frame

Device	Output Short-Circuit Protection	Programmable Current Limit	Line UV	Line OV	Line Ripple Rejection	Soft Start (ms)	I ² f Trimming	Nominal Switching Frequency (kHz)	On-Time Extension	Peak Power Delivered During Short Circuit (%)	Fast AC Reset	Integrated Latching Shutdown
TNY274	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY275	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY276	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY277	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY278	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY279	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y
TNY280	Auto-Restart	Y	Y	N	Inherent	N/A	Y	132	Y	3	N	Y

Design Examples

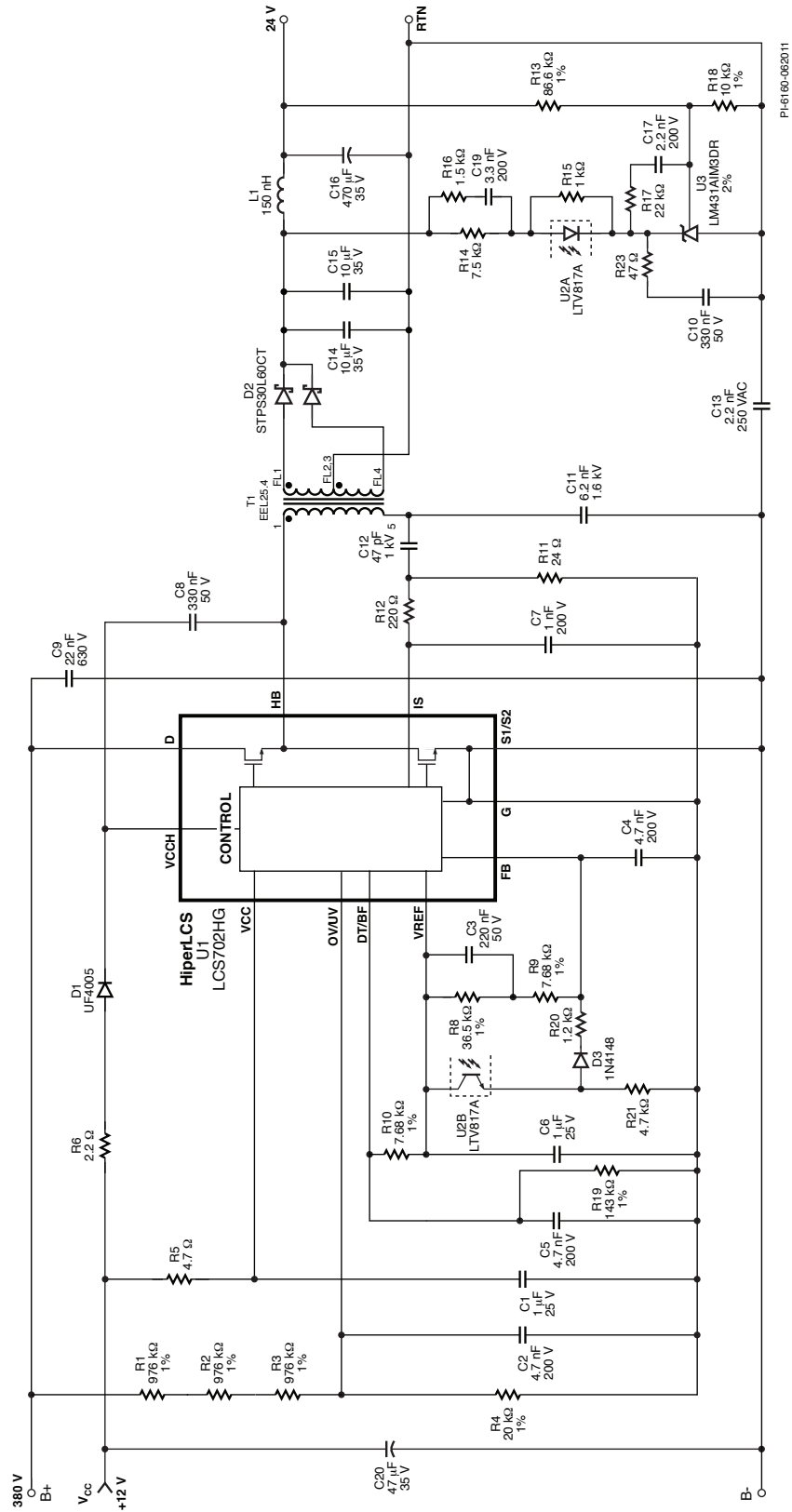
HiperLCS – LLC High-Voltage DC-DC Resonant Converter (DER-270)

125 W, 24 V, 4 A, and 12 V, 2.4 A, 380 VDC INPUT POWER SUPPLY



HiperLCS – LLC High-Voltage DC-DC Resonant Converter (RDK-239)

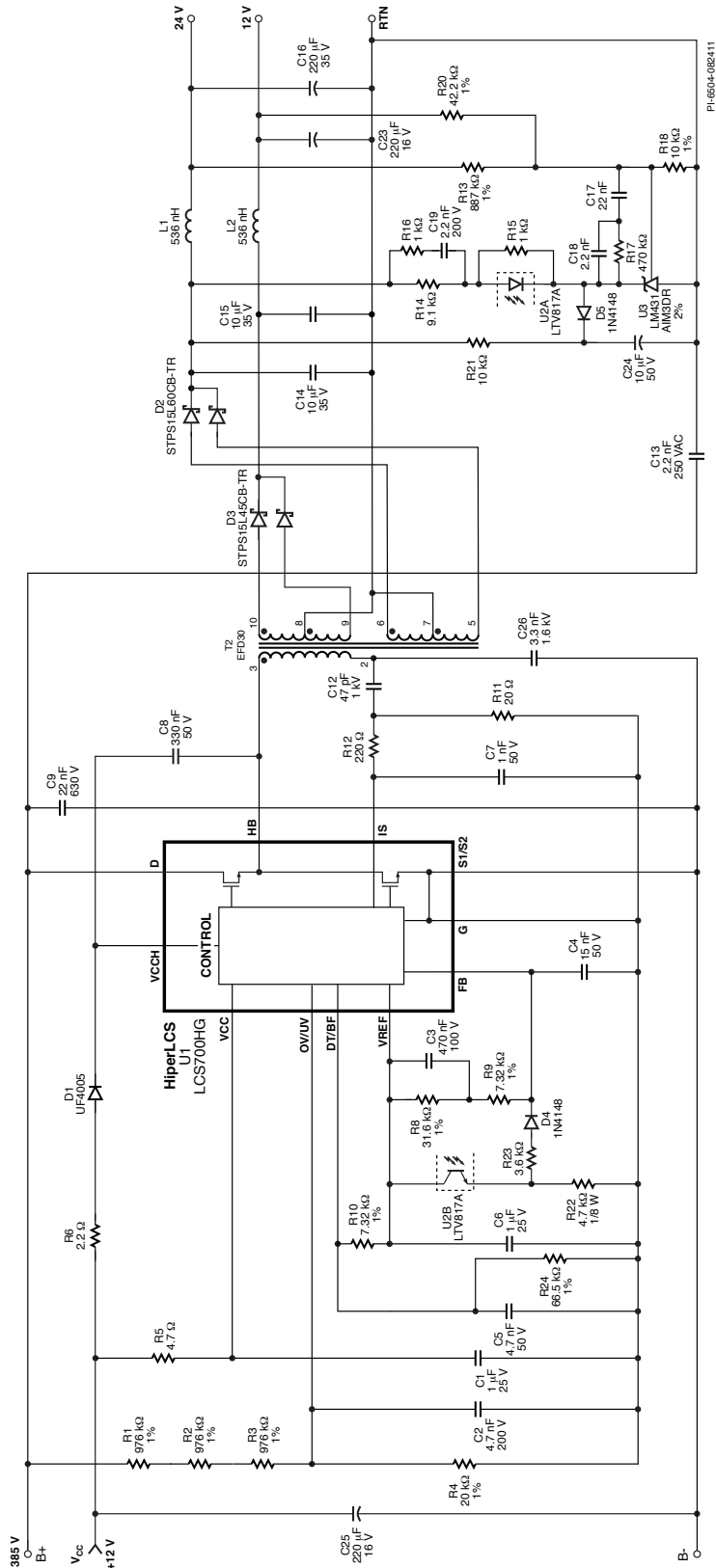
150 W, 24 V, 6.25 A, 380 VDC INPUT POWER SUPPLY



Design Examples

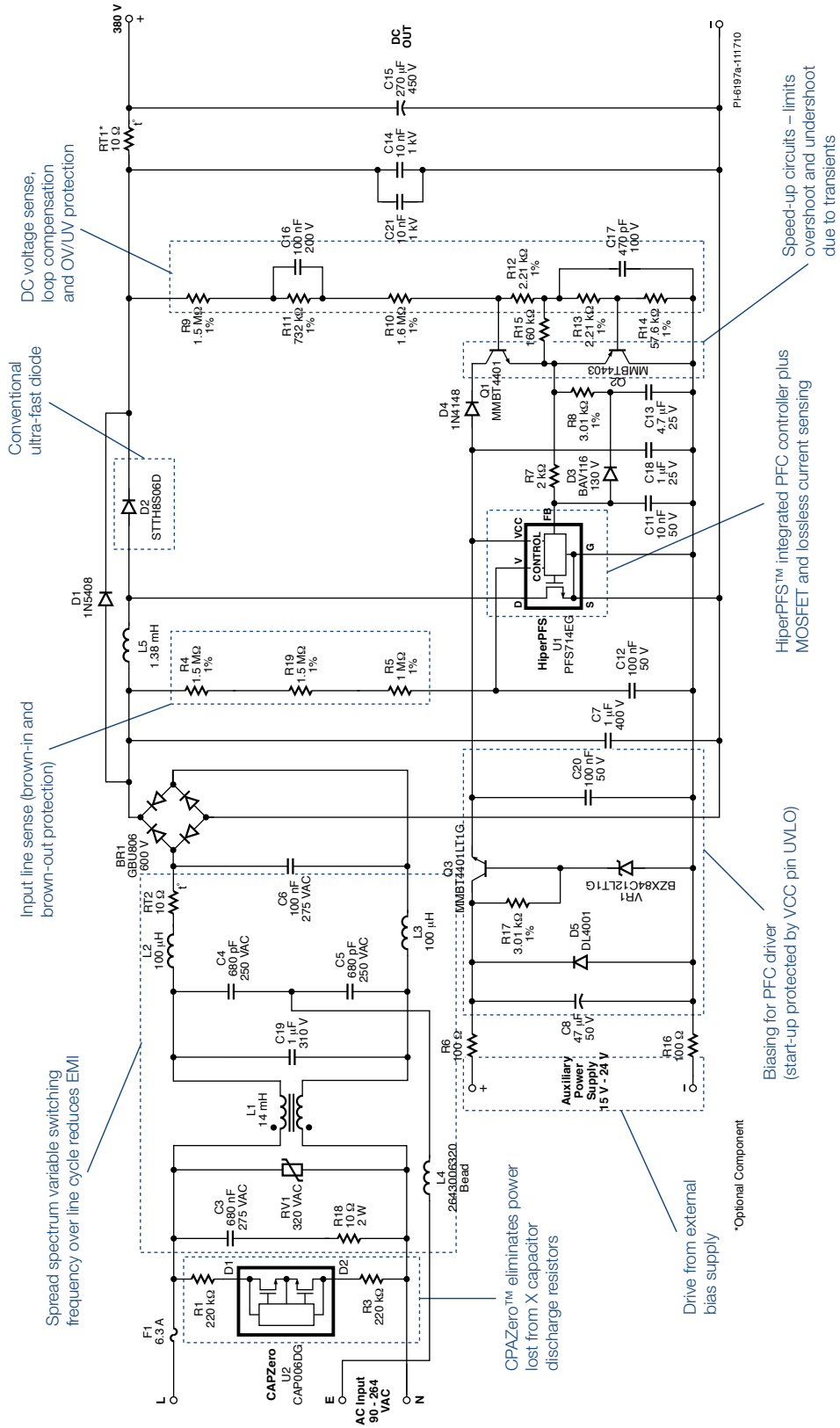
HiperLCS – LLC High-Voltage DC-DC Resonant (DER-282)

100 W, 24 V, 3 A, and 12 V, 2.32 A, 380 VDC INPUT POWER SUPPLY



HiperPFS – Boost PFC Front End (RDK-236)

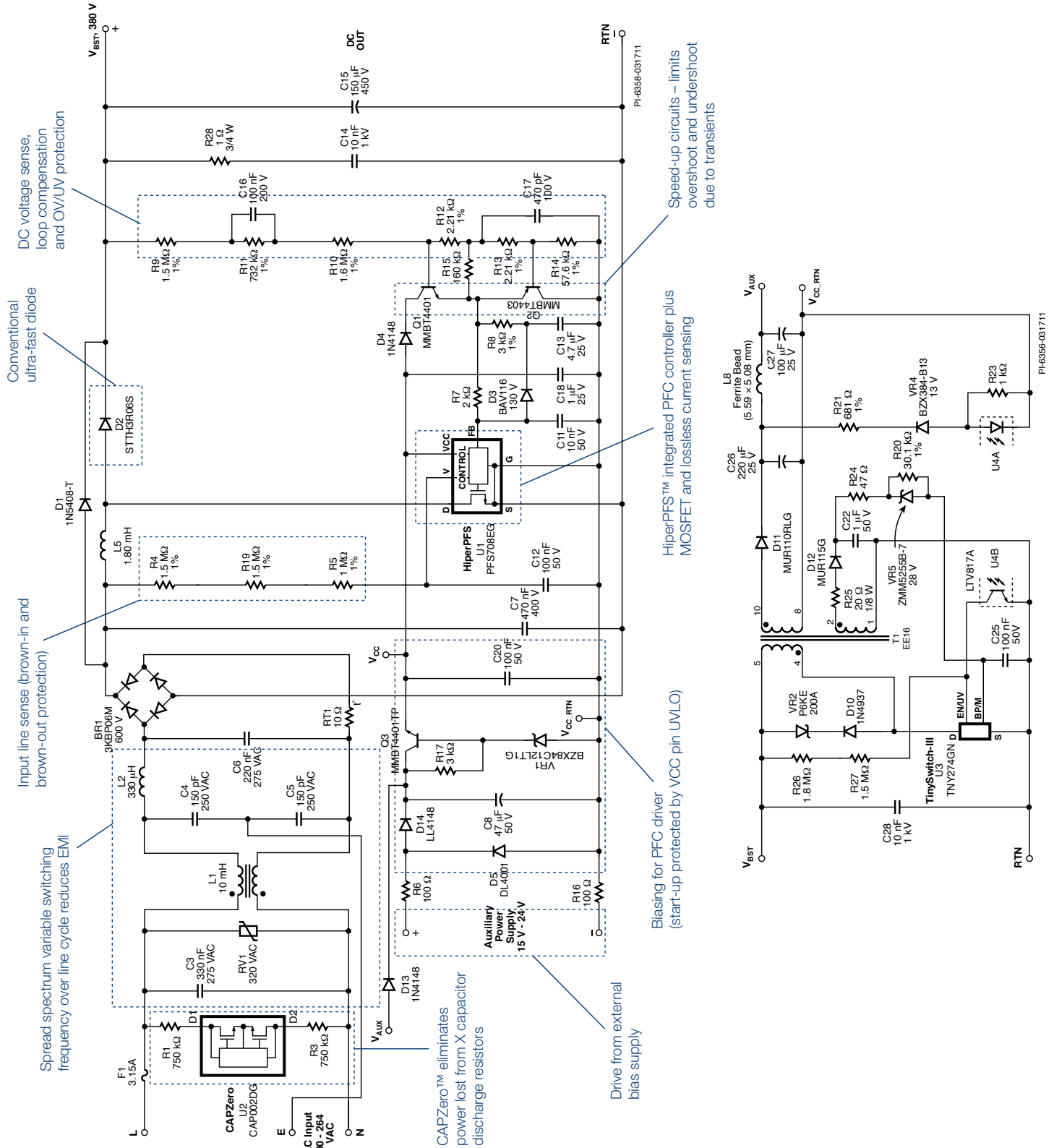
347 W, 380 V, 913 mA, 90 – 264 VAC INPUT PFC CONTROLLER POWER SUPPLY



Design Examples

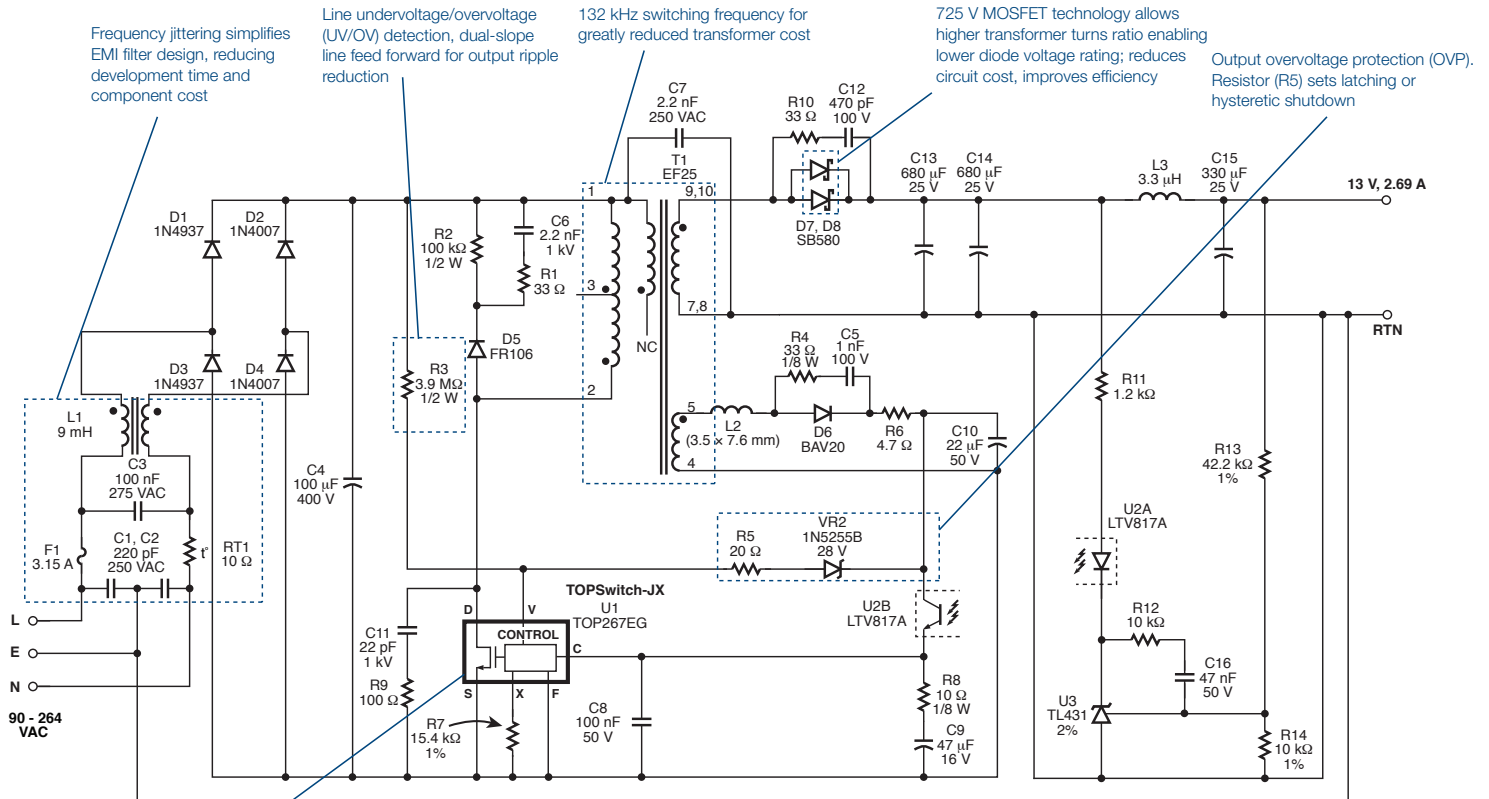
HiperPFS – Boost PFC Front End with Standby Power Supply (RDK-248)

180 W, 380 VDC, 474 mA, 90 – 264 VAC INPUT PFC CONTROLLER POWER SUPPLY



TOPSwitch-JX – LCD Monitor (DER-187)

35 W, 13 V, 2.69 A, 90 – 264 VAC INPUT FLYBACK POWER SUPPLY



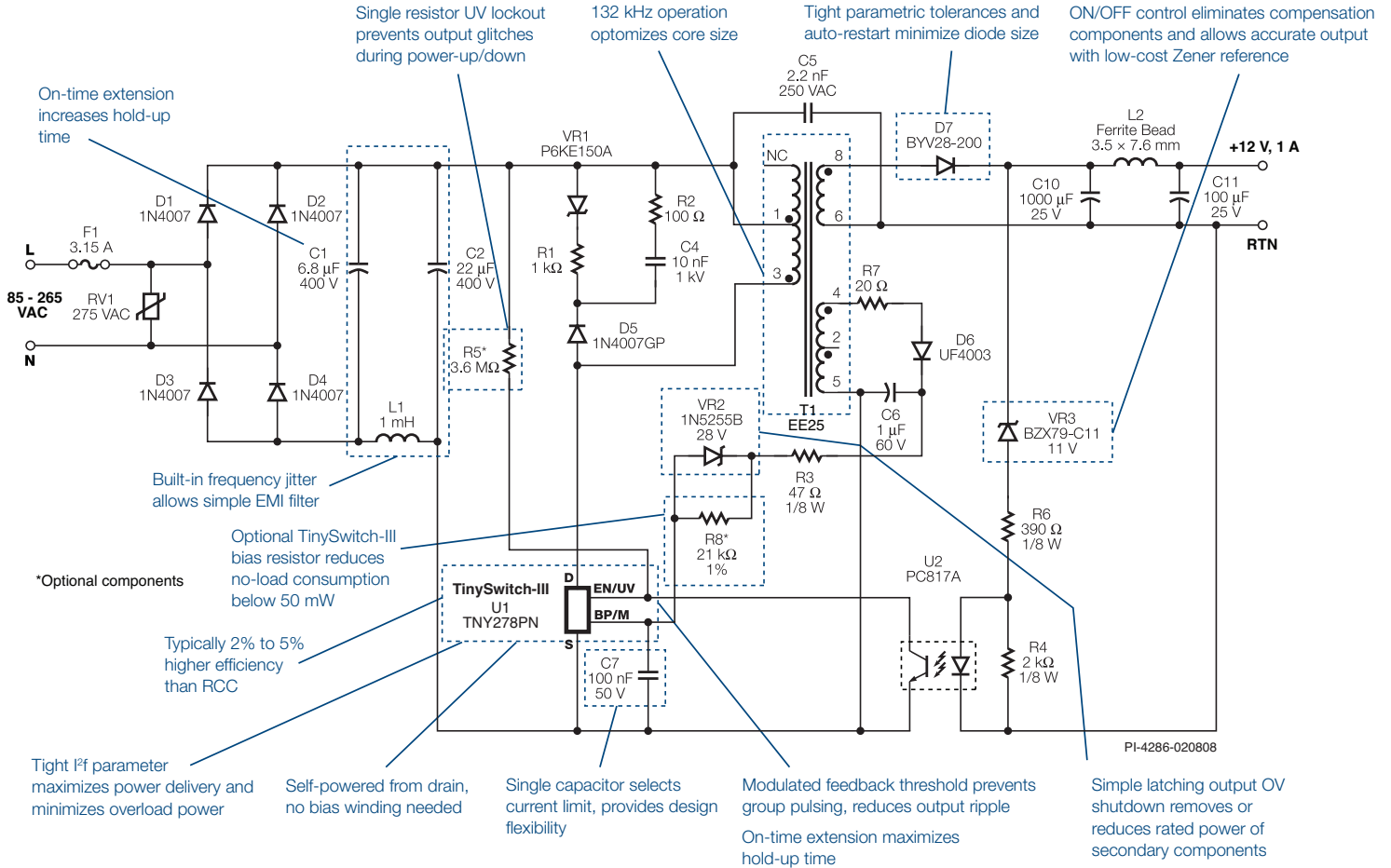
TOPSwitch-JX

- Accurate thermal shutdown with large hysteresis provides complete system-level protection
- Tight If tolerance minimizes the size of the transformer and output diodes and reduces overload to rated power ratio
- Internal high-voltage current source eliminates start-up circuitry
- Internal current sense circuit eliminates sense resistor
- DIP-8 package with 2 Ω MOSFET and optimized pinout eliminates heatsink
- Auto restart limits available power to <3% of maximum power in short-circuit and open-loop fault conditions

Design Examples

TinySwitch-III – Constant Voltage Input Adapter (RDK-91)

12 W, 12 V, 1 A, 85 – 265 VAC INPUT POWER SUPPLY



Reference Designs

Design Example Report (DER)

Design Example Reports contain a power supply design specification, schematic, bill of materials, transformer documentation, and PCB layout. This design has been built and bench-tested to provide performance data and typical operation characteristics.

DER

Design Idea (DI)

Design Ideas are concise two-page documents describing a design for a specific application. Key design points are highlighted.

DI

Reference Design Report (RDR)

Reference Design Reports contain a power supply reference design specification, schematic, bill of materials, transformer documentation, and PCB layout. Performance data and typical operating characteristics are included. The design has been put into production for use in our Reference Design Kits (RDKs).

RDR/
EPR

Application	Product Family	AC Input Voltage (V)	Output Voltage (V)	Output Power (W)	Topology	Documents	DAK/RDK
Appliance	TinySwitch-III	165-265	9	9	Flyback	DI-177	
	TinySwitch-III	200-400	12 / 15	20	Flyback	DI-176	
	TinySwitch-III	85-265	-5 / -12	13 (7.2 PK)	Flyback	DI-122	
General Purpose	HiperLCS	300-420 (DC)	24	150	LLC	RDR-239	RDK-239
	TOPSwitch-JX	85-264	12	30	Flyback	RDR-242	RDK-242
	TinySwitch-III	85-265	12	15	Flyback	DER-228	
	TinySwitch-III	85-265	12	12	Flyback	DI-91, RDR-91	RDK-91
Industrial Controls	TinySwitch-III	18-30	5	1.25	Flyback	DI-153	
LCD Monitor	TOPSwitch-JX	90-264	5 / 16	36.3	Flyback	DER-259	
	TOPSwitch-JX	90-265	5 / 14.5	27	Flyback	DER-235	
LCD TV	HiperLCS	300-420 (DC)	12 / 24	125	LLC	DER-270	
	HiperLCS	300-420 (DC)	12 / 24	100	LLC	DER-282	
	HiperPLC / TinySwitch-III	85-265	24, 12, 5, 5	225 (285)	PFC + LLC	RDR-189	RDK-189
LED Driver	HiperLCS	90-265	48	150	PFC + LLC	RDR-292	RDK-292
	HiperPLC	140-265	48	150	PFC + LLC Half-bridge	DER-212	
	TinySwitch-III	195-265	20	14	Flyback	DER-173, DI-173	
	TinySwitch-III	185-265	10 (1.8 A)	18	Flyback	DI-130	
Notebook Adapter	TOPSwitch-JX	90-265	19	65	Flyback	DER-243	
PC Main	HiperPFS	90-264	380	180	PFC Boost	RDR-248	RDK-248
	HiperTFS	300-385	5 / 12	300	Flyback	RDR-249	RDK-249
	HiperPFS	90-264	380	347	PFC Boost	RDR-236	RDK-236
PC Standby	CAPZero	85-264	N/A	N/A	N/A	RDR-252	RDK-252
	TOPSwitch-JX	110-400	5	20	Flyback	DER-247	
	TOPSwitch-JX	110-400	12	30	Flyback	DER-246	
	TinySwitch-III	85-295 / 110-420 (DC)	5 (4 A) / 15 (67 mA)	21	Flyback	DER-114	

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